

Student Information

Essential Questions:

What clues do rocks hold about ways and rates that landscapes change over time?

What changes in matter and transformations of energy control Earth's processes?

How do water velocity, streambed slope/gradient, and underlying rock type affect the shape of the stream valley?

How might the stream valley change over time?

Investigation Question:

What is the relationship between stream velocity and changes in stream elevation?

Background:

We have been studying how the Earth changes over time due to a variety of factors such as plate tectonics, rock formation, weathering and erosion. We have looked at different agents of change like water, wind, volcanism, subduction, and chemical reactions. The area we will explore is part of Brandywine Creek State Park. This area was once mountain and coastal plain that eroded over time. The area is continuing to change today. The activities in this unit will require you to make predictions, analyze data, draw conclusions, and synthesize your knowledge to draw a hypothesis of how the stream will change in the future.

Geology of Red Clay Valley, the Brandywine Creek, and Rocky Run Tributary

- ❖ Metamorphic basalt- volcanic area in the distant past
- ❖ This piedmont was created as the coastal plain was subducted under the North American plate.
- ❖ The rock changed over time due to pressure and heat deep in the lithosphere
- ❖ Metamorphic basalt erodes slowly
- ❖ Other rocks found in the area: marble, quartzite, gneiss due to sedimentary rock depositing over time.

Vocabulary:

Velocity	Latitude	Longitude	topographic map
Slope/gradient	metamorphic	sedimentary	stream valley
Streambed	elevation	subduction zone	piedmont

